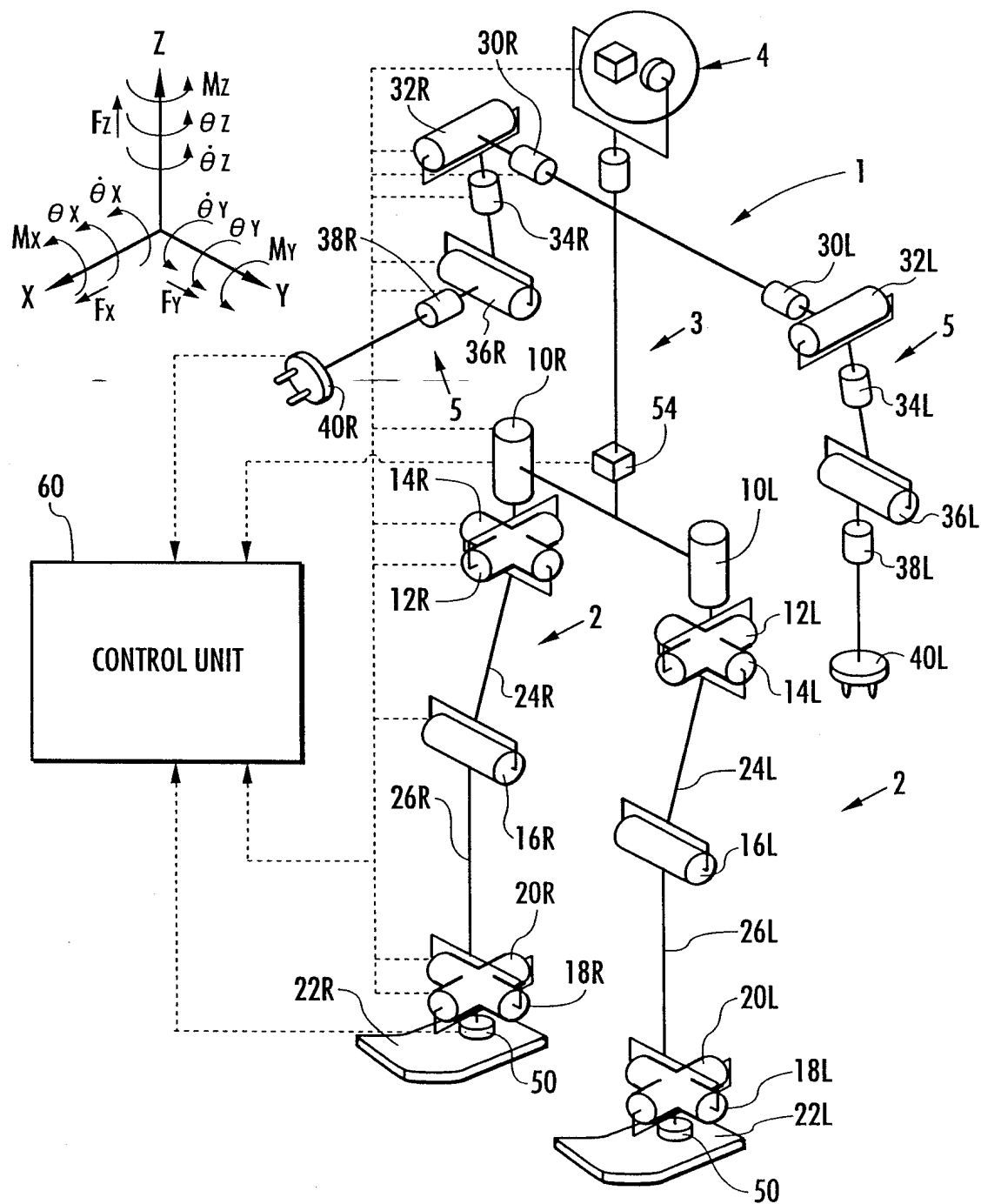


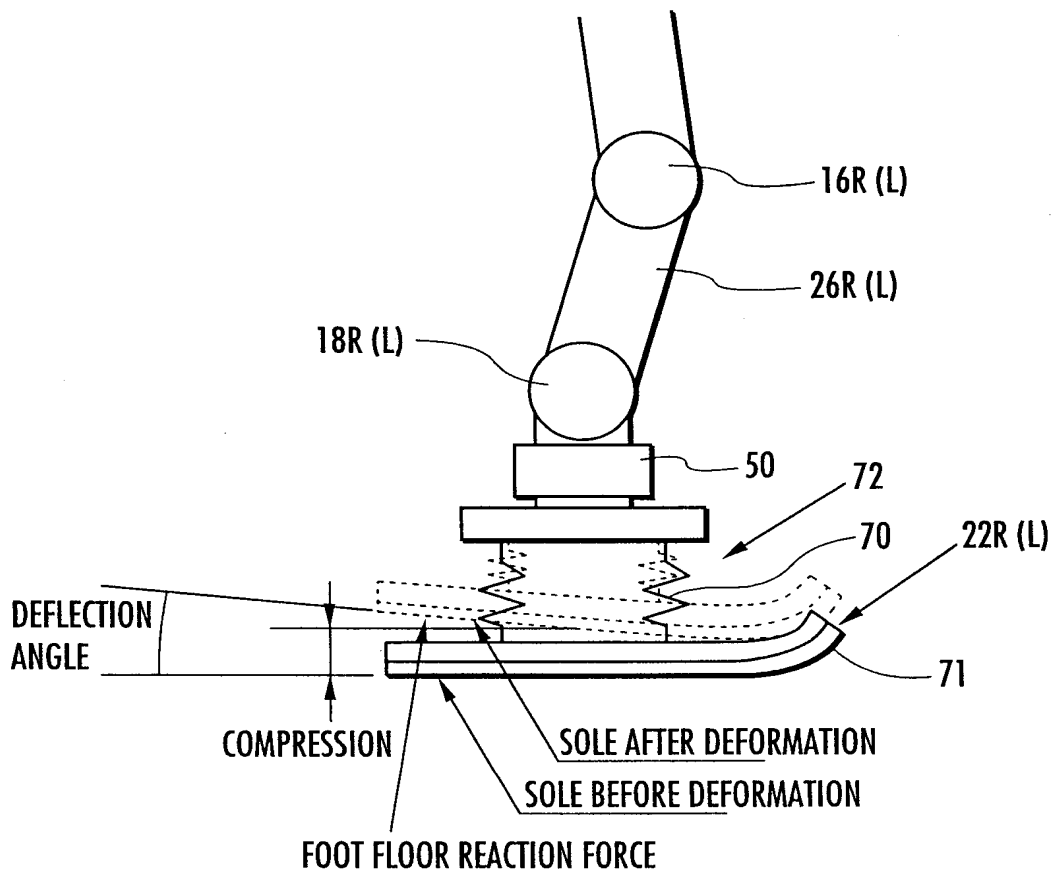
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FIG.1



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FIG.2



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FIG.3

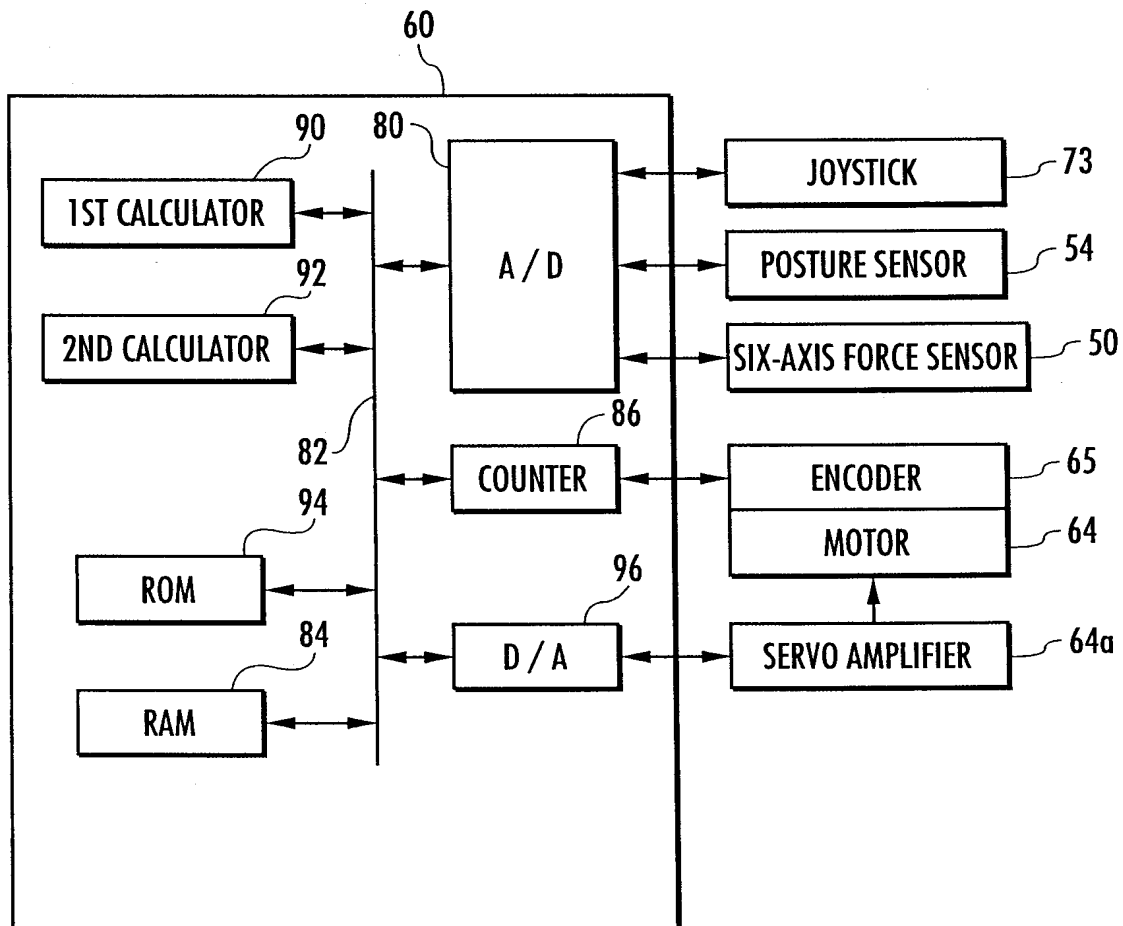
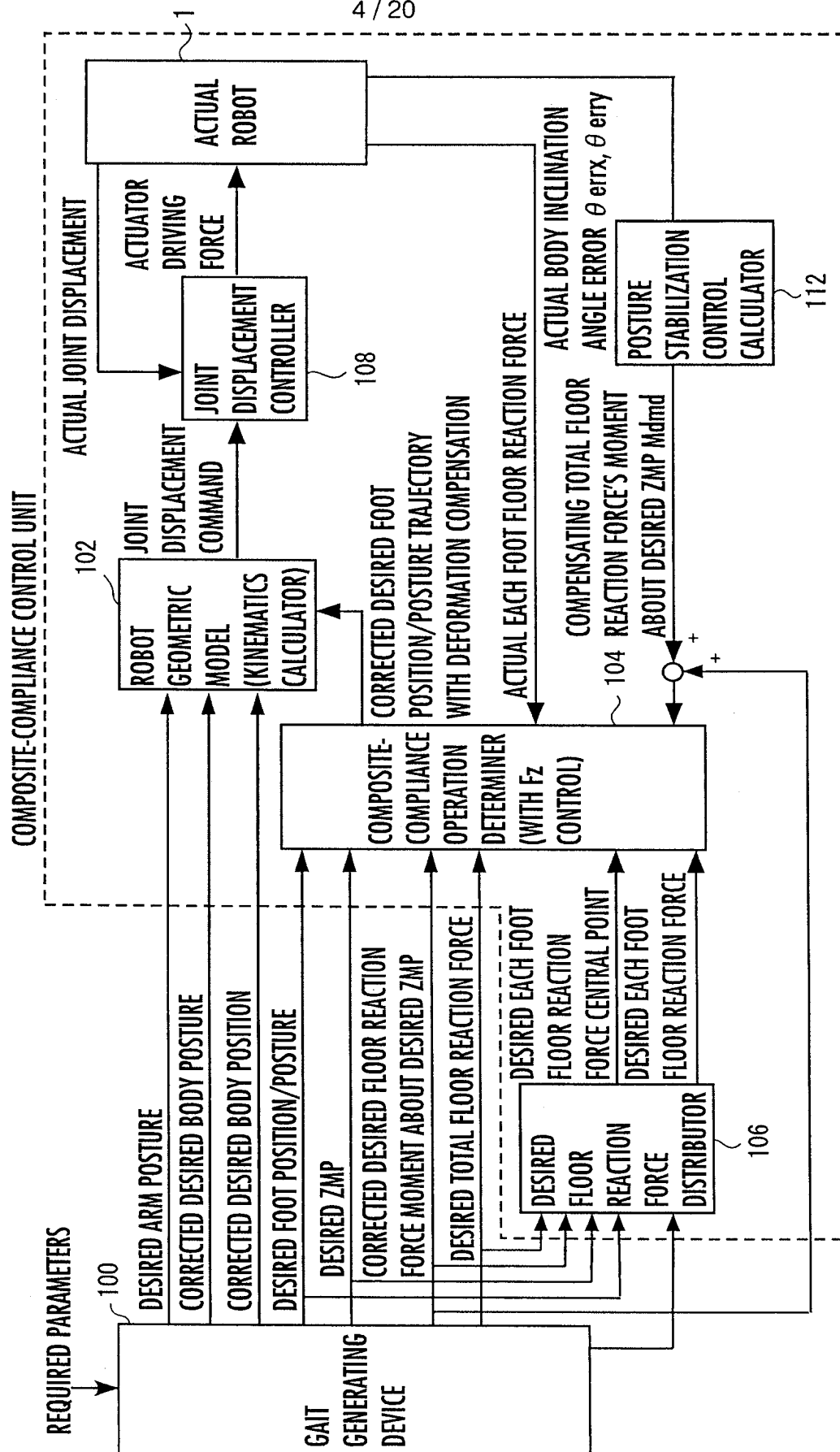
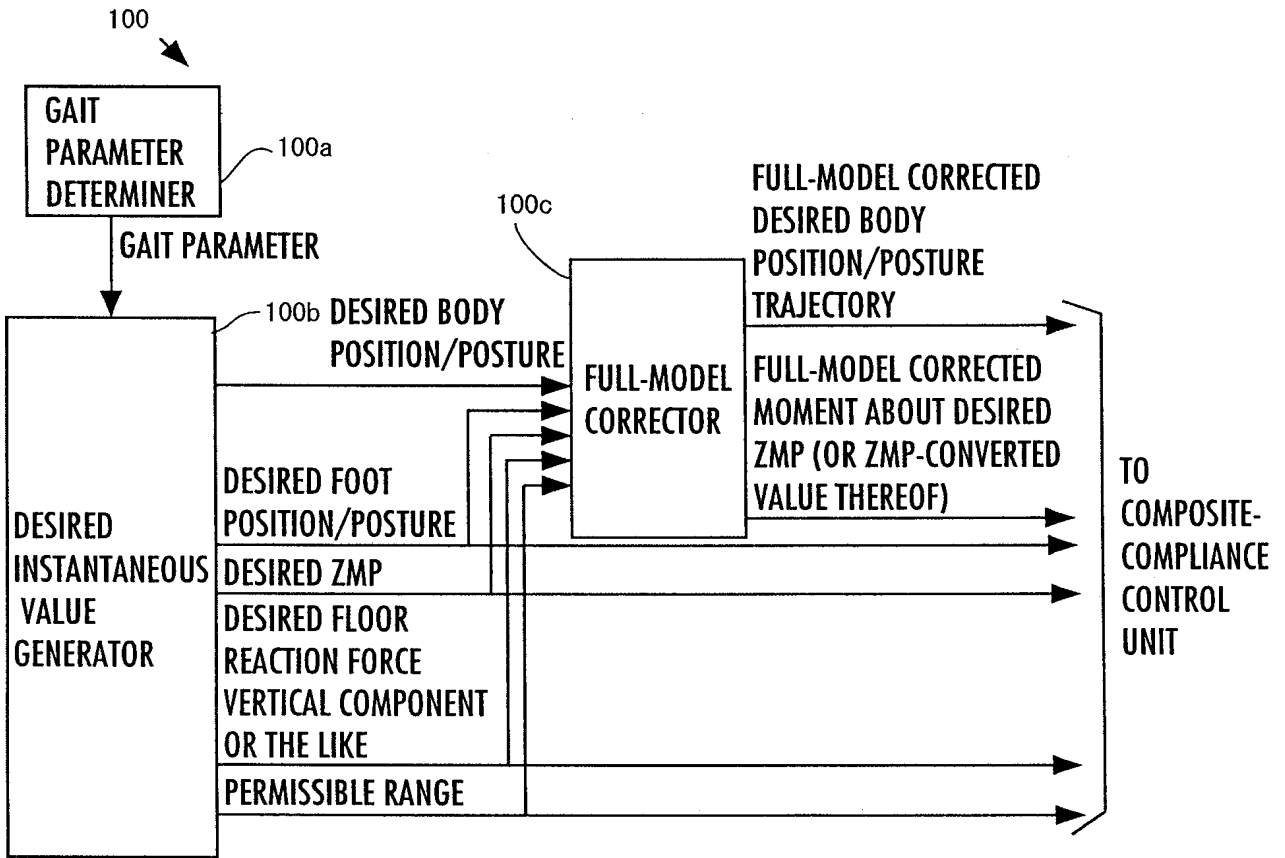


FIG. 4



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FIG.5



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FIG.6(a)

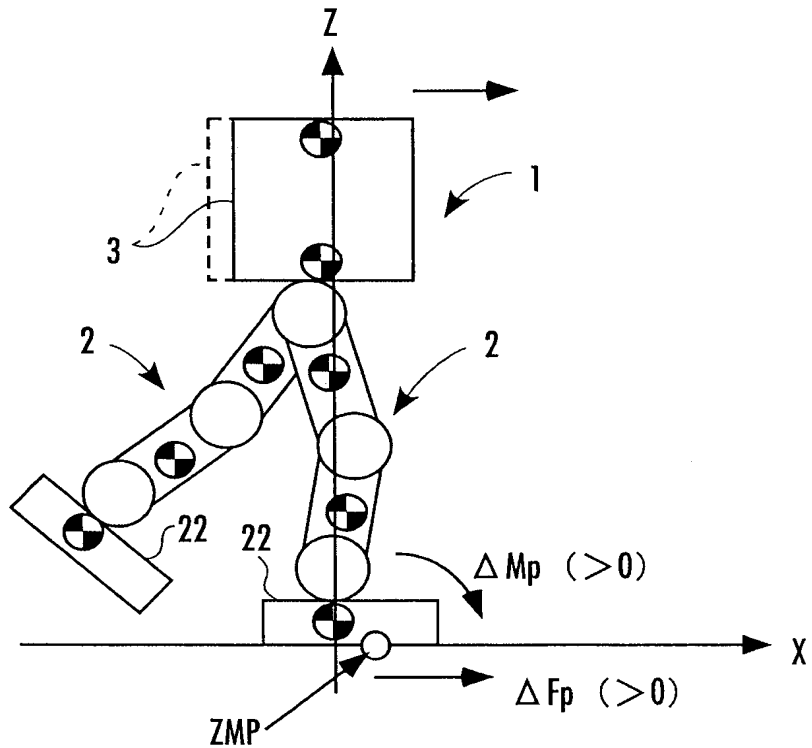
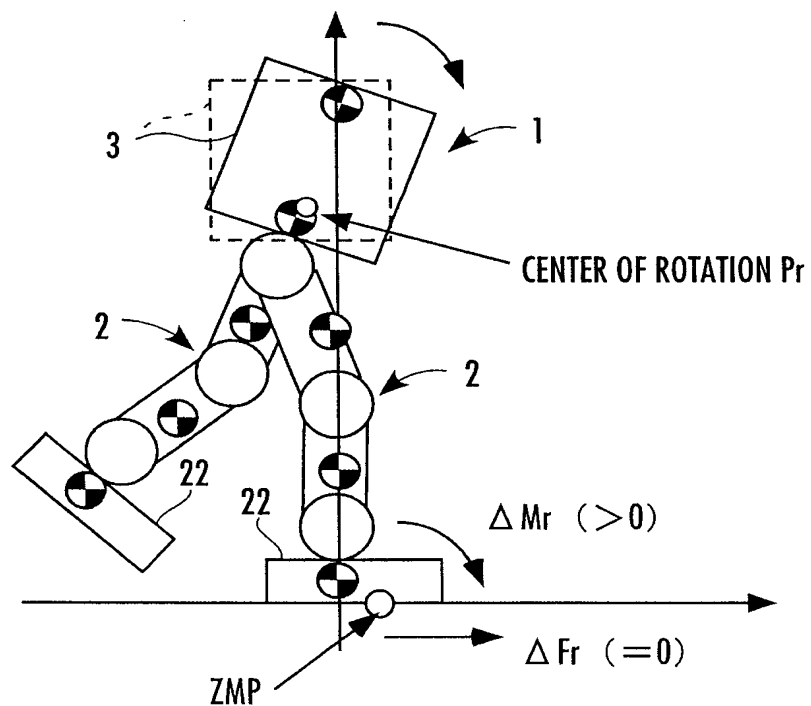
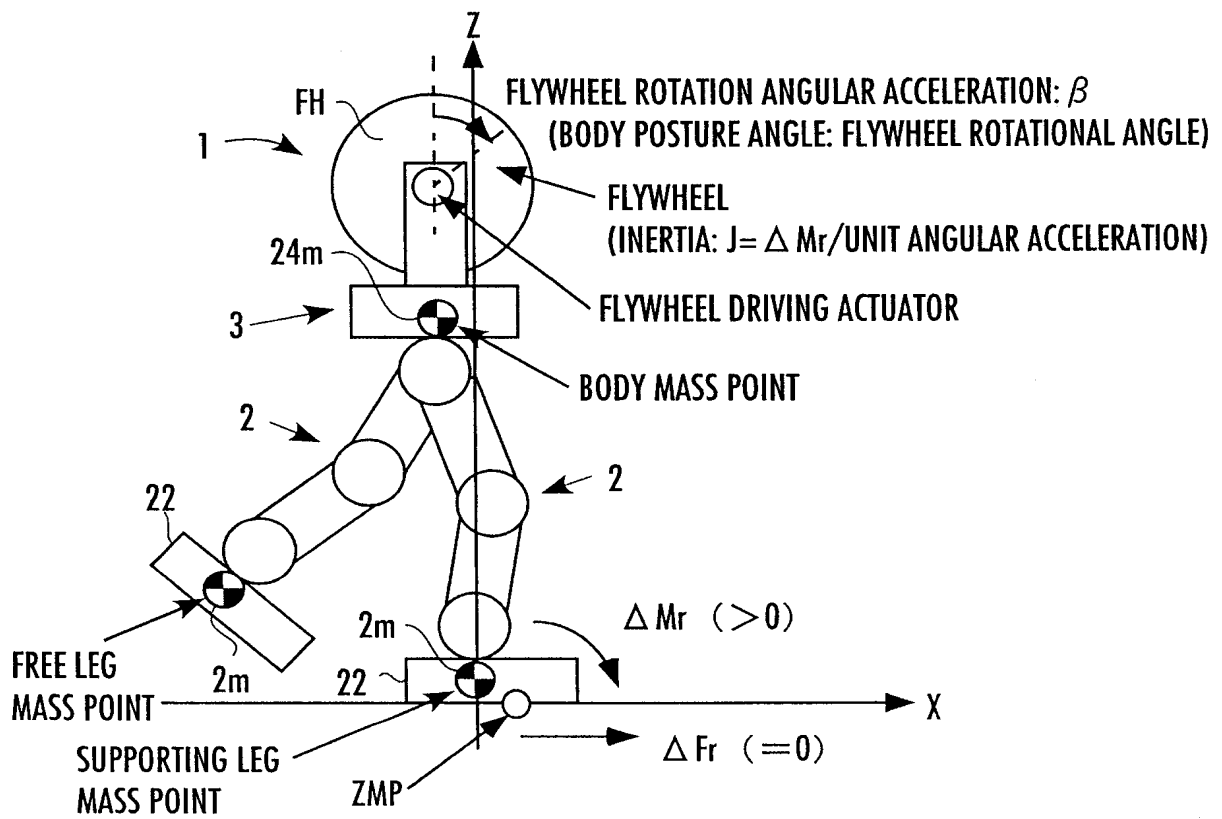


FIG.6(b)



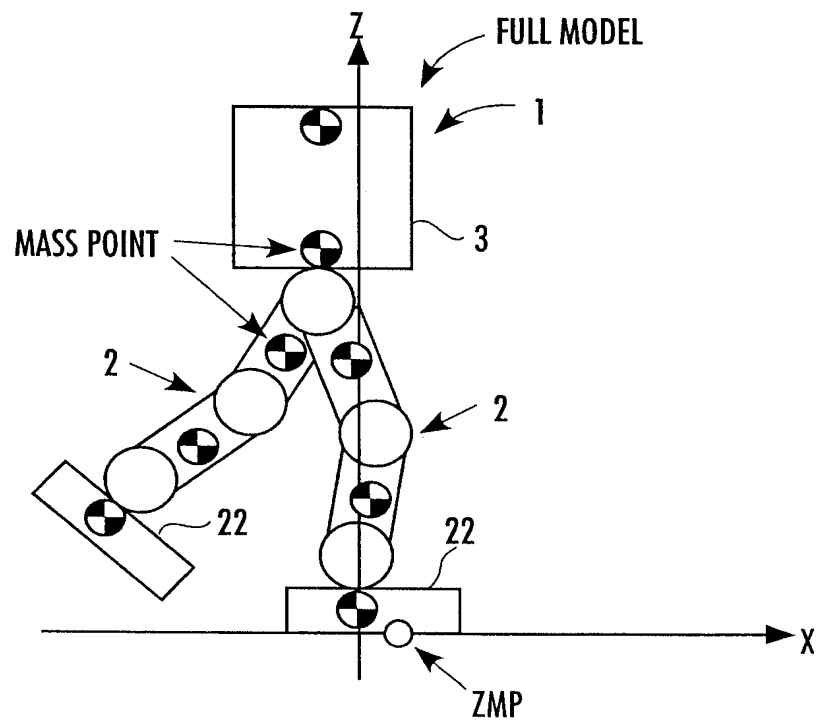
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FIG.7



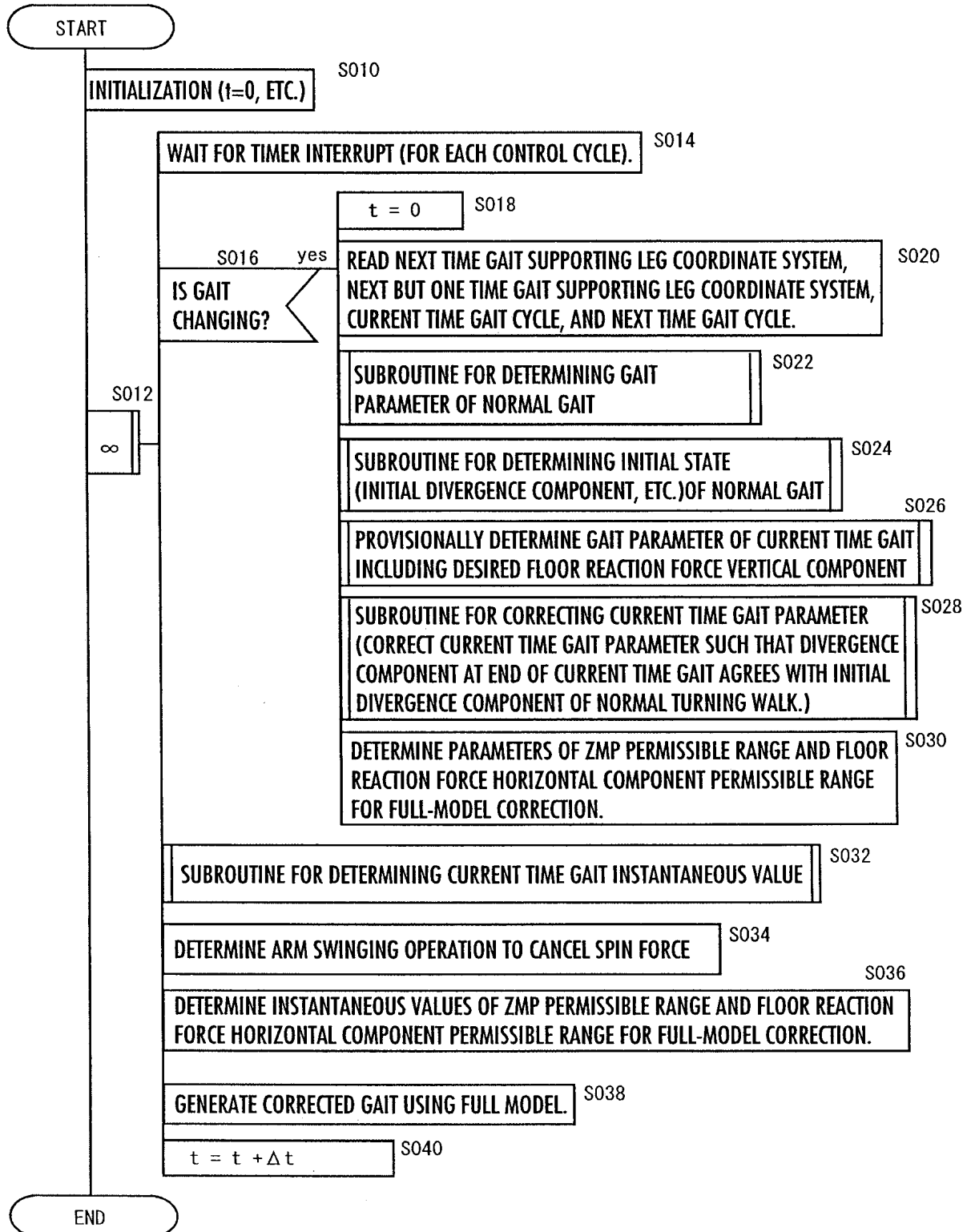
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FIG.8



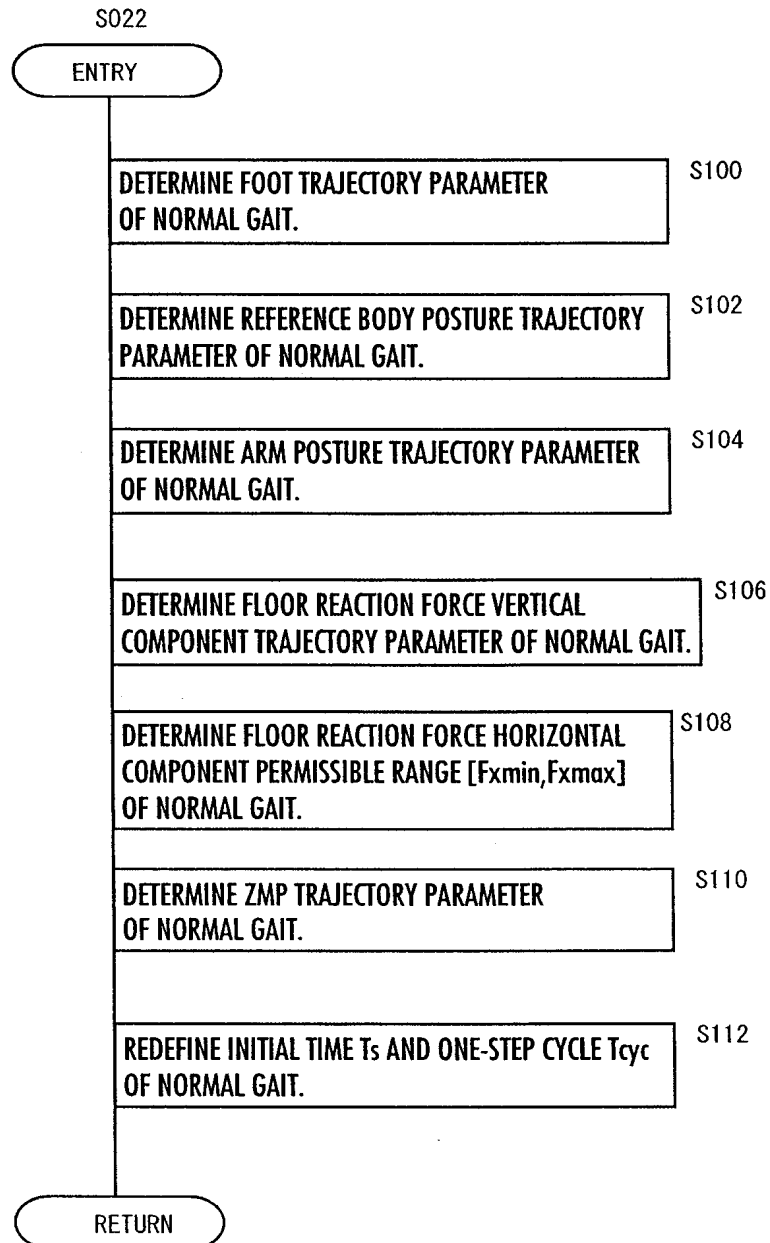
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FIG.9



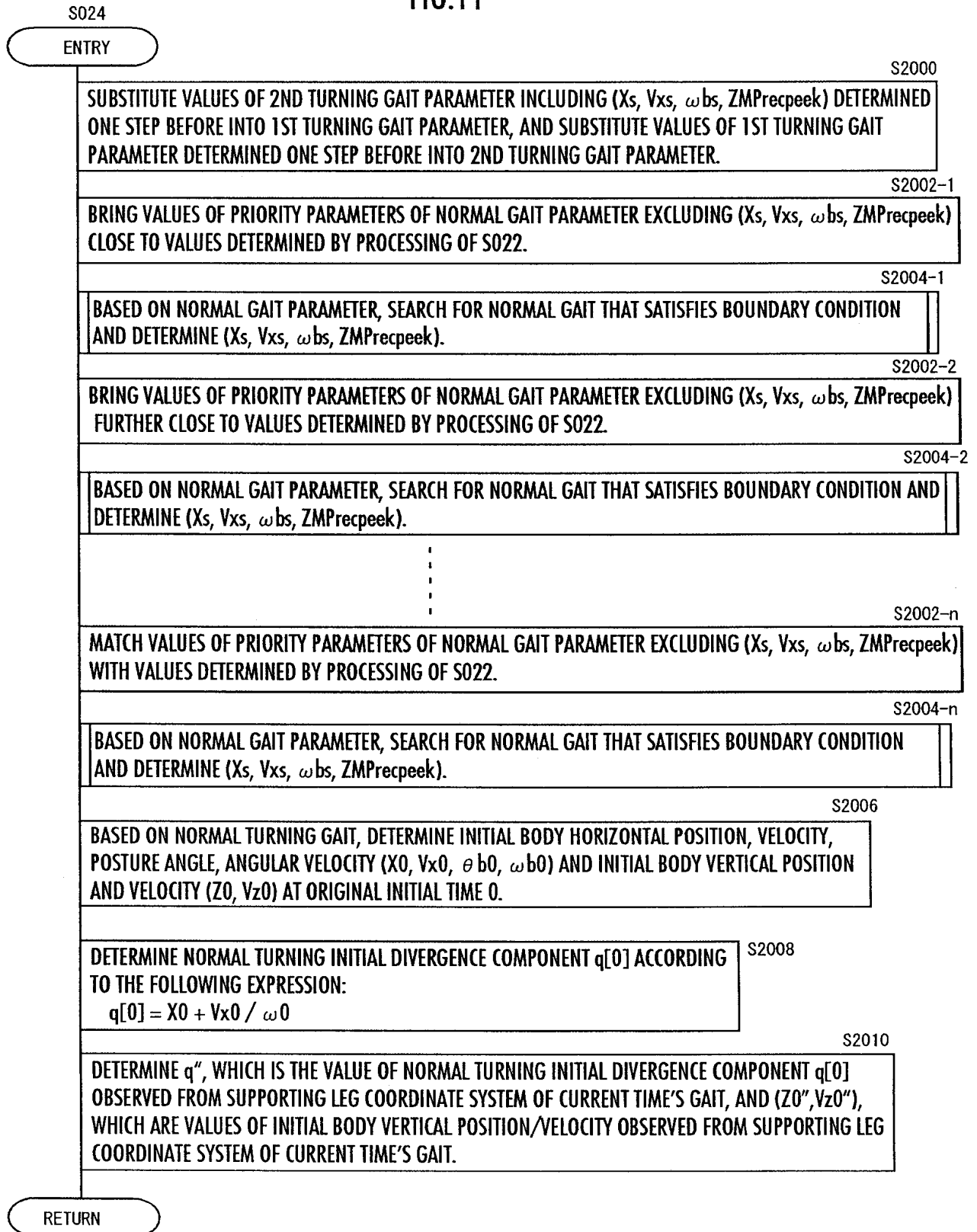
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FIG.10



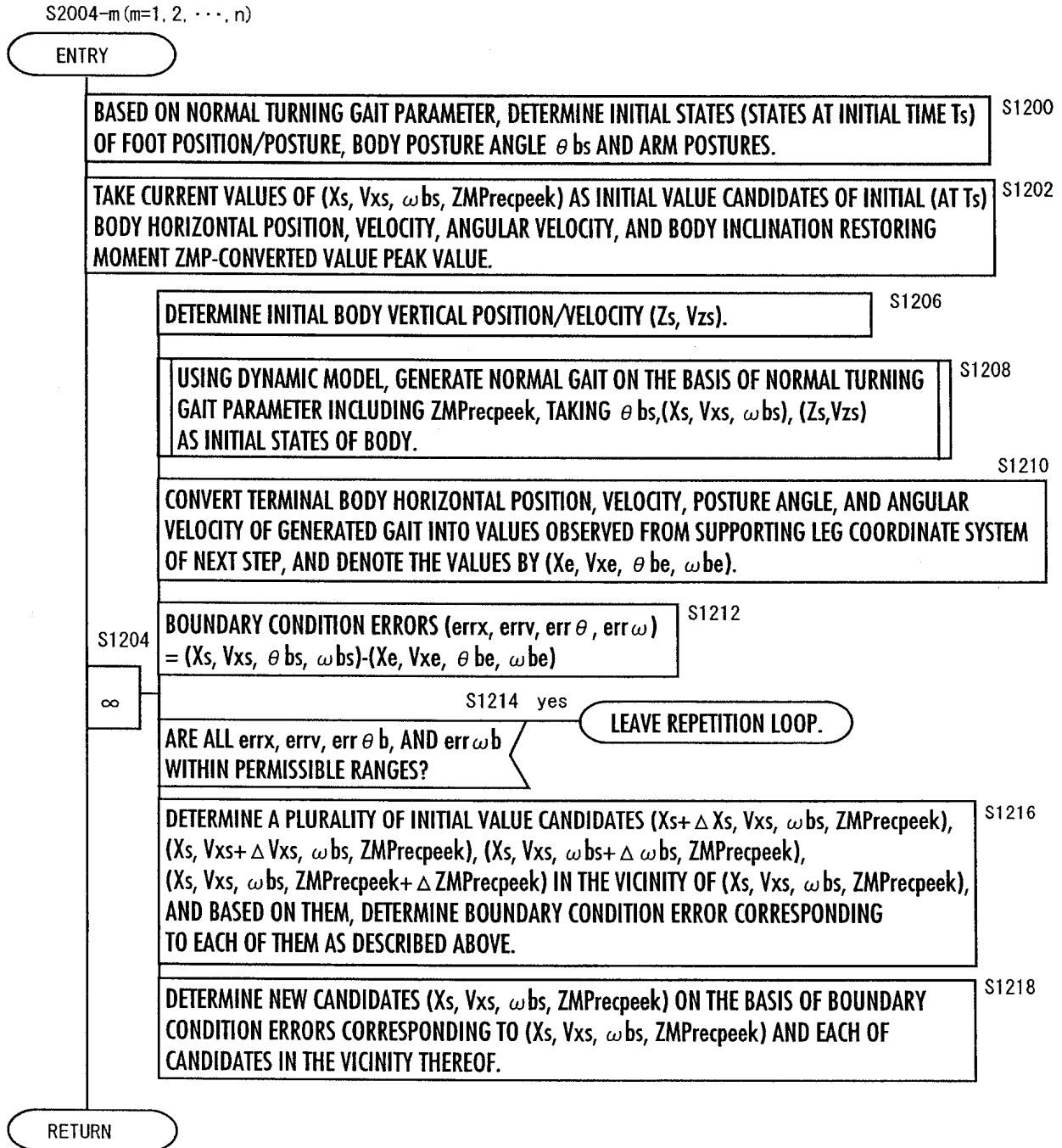
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FIG.11



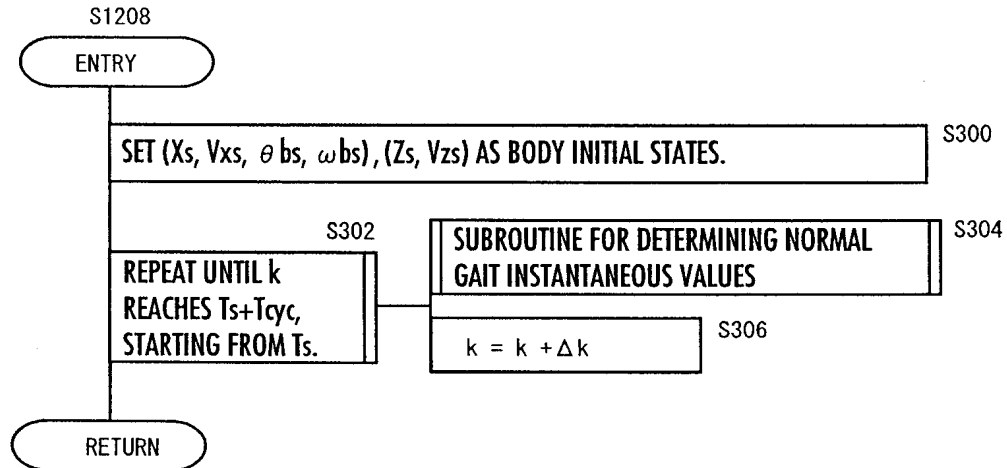
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FIG.12



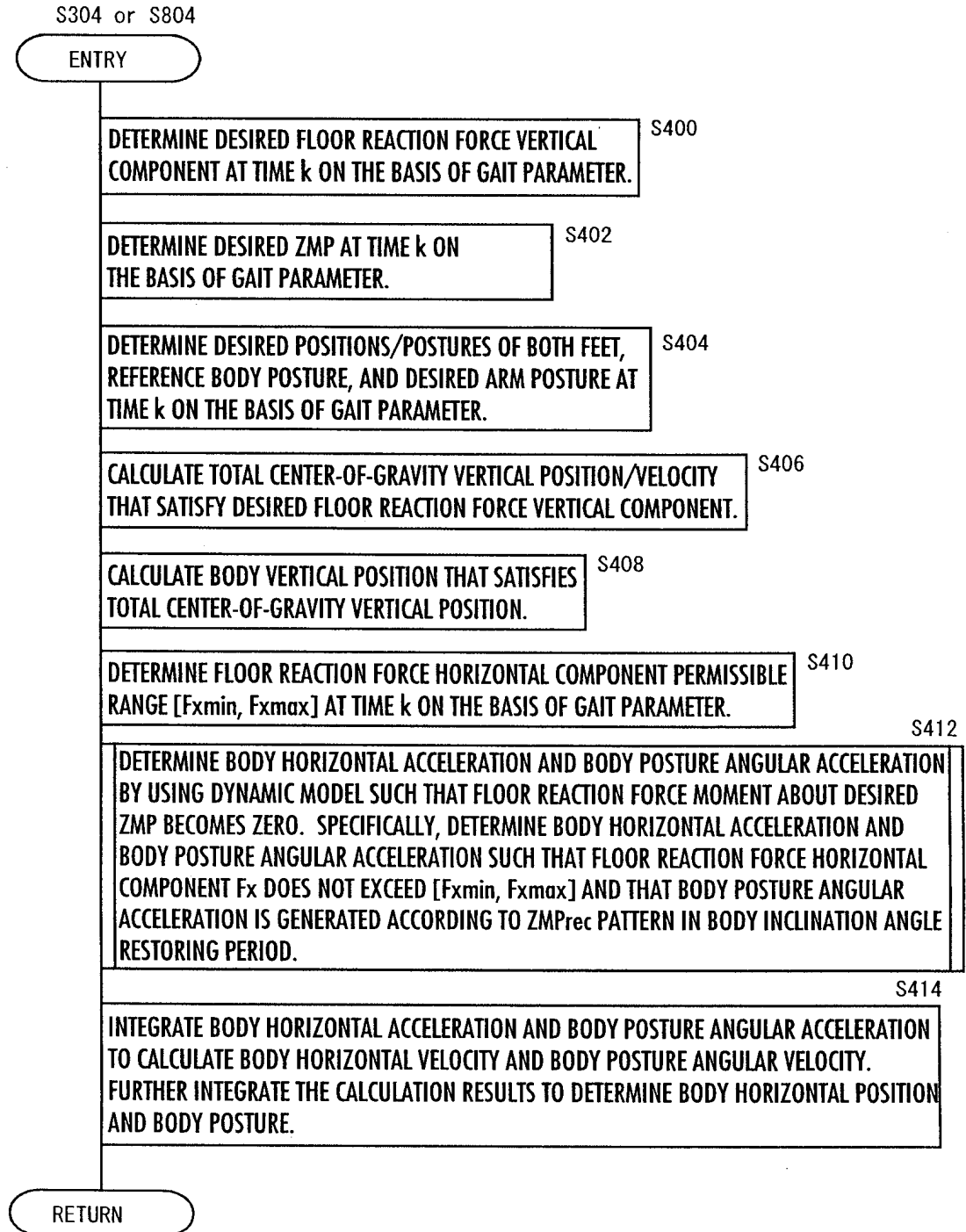
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FIG.13



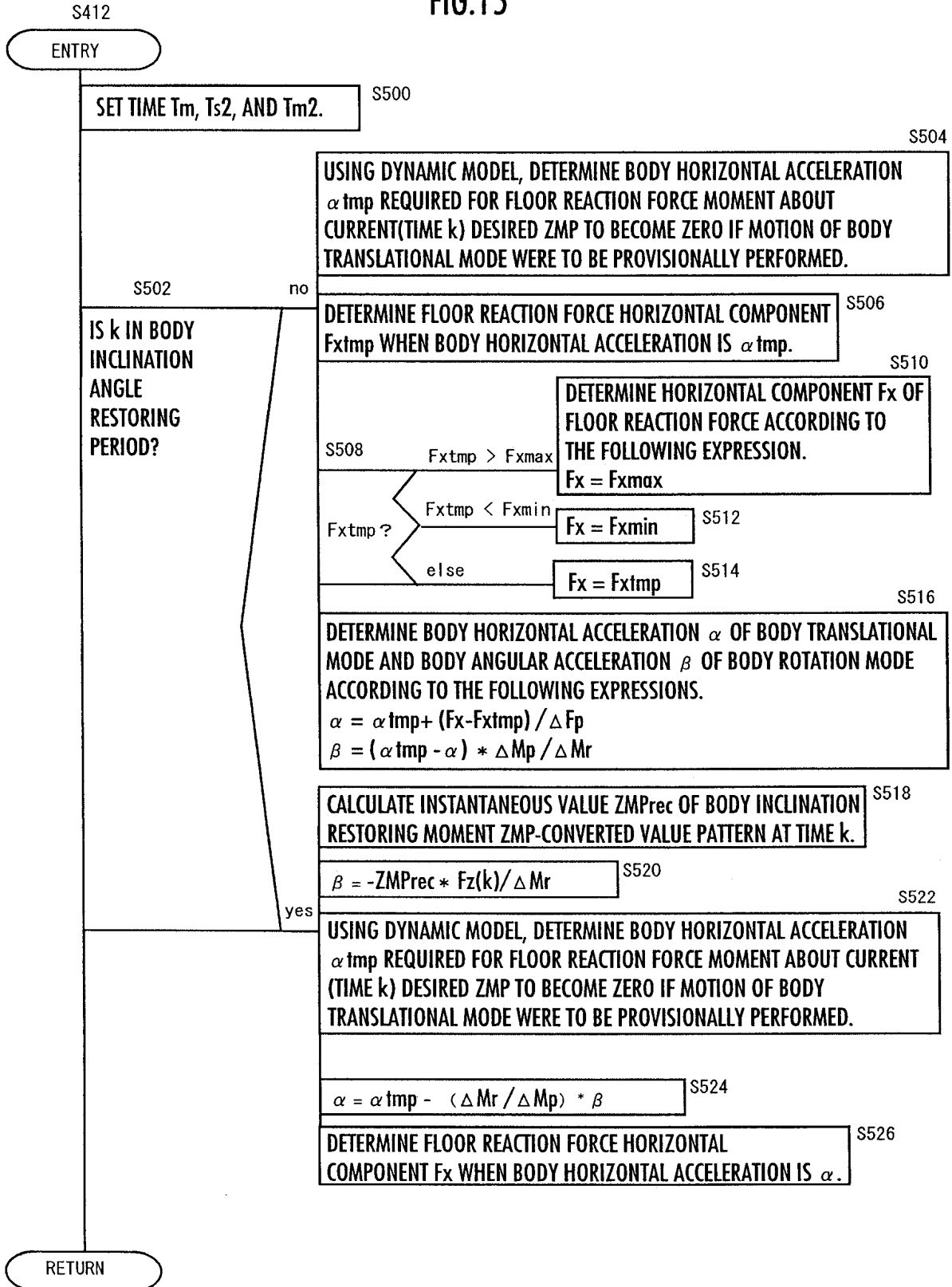
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FIG.14



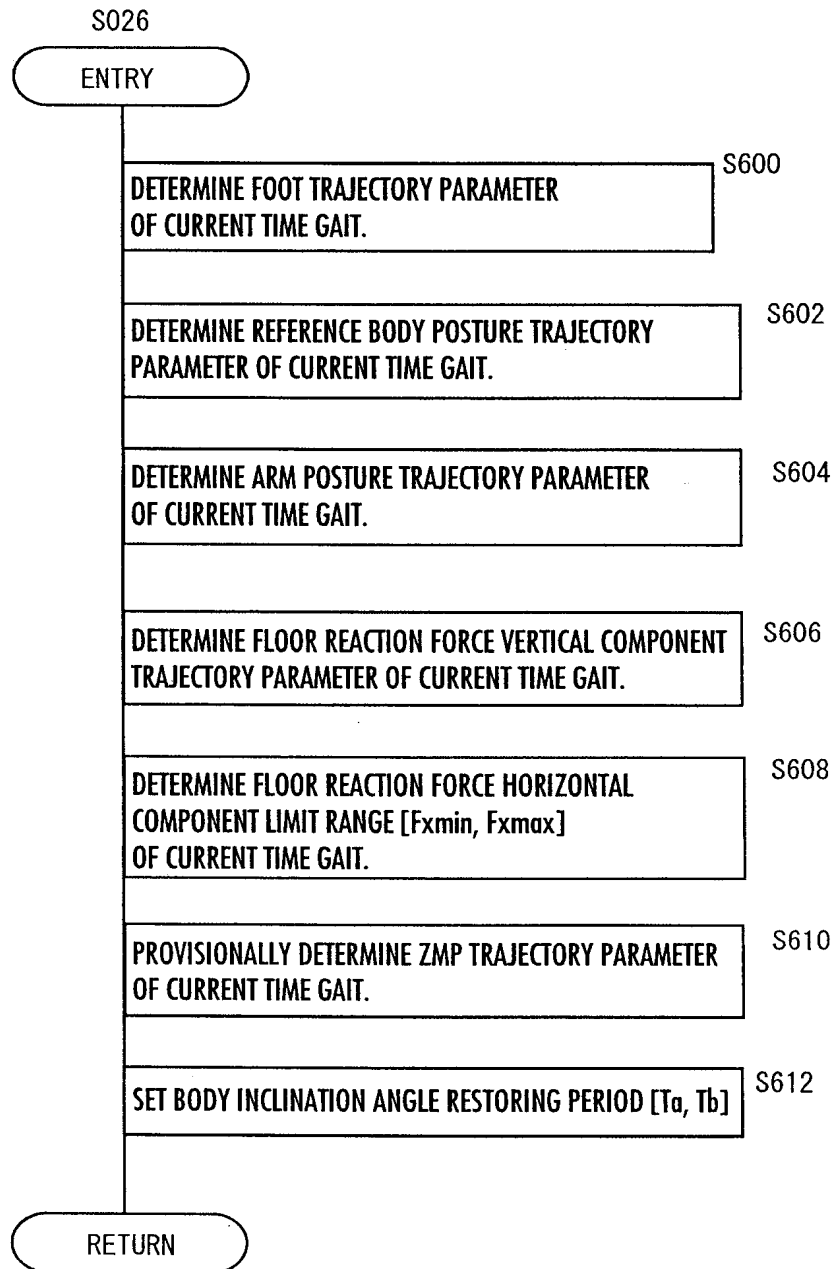
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FIG.15



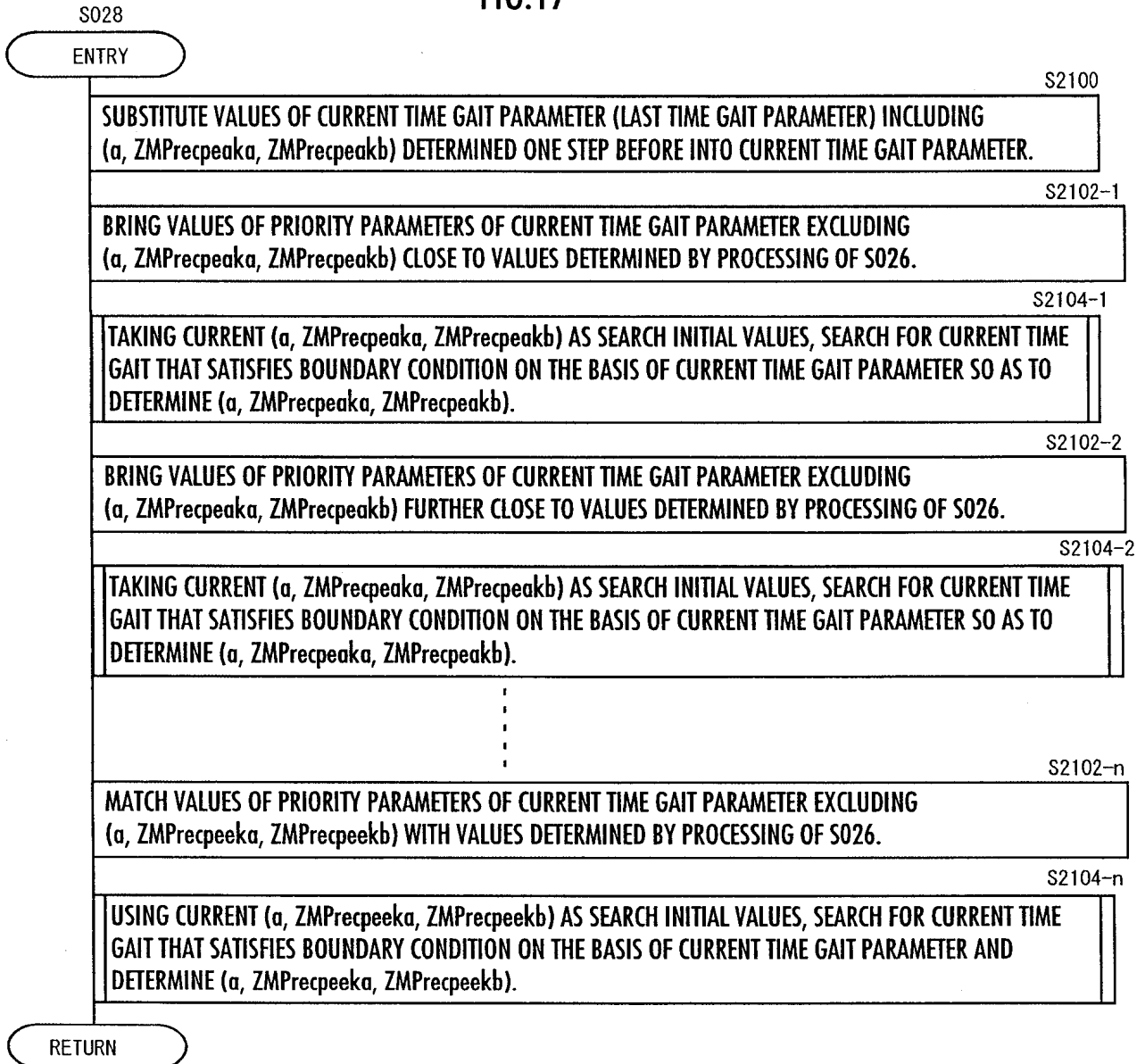
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FIG.16



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FIG.17



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FIG.18

S2104-m (m=1, 2, ..., n)

ENTRY

S1700

TAKE CURRENT VALUES OF (α , ZMPrecpeeka, ZMPrecpeekb) AS INITIAL VALUE CANDIDATES OF ZMP CORRECTED PARAMETER CANDIDATE α AND BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES (ZMPrecpeeka, ZMPrecpeekb), RESPECTIVELY.

S1704

CALCULATE CURRENT TIME GAIT USING DYNAMIC MODEL UNTIL TERMINATING TIME ON THE BASIS OF PARAMETER OBTAINED BY CORRECTING CURRENT ZMP TRAJECTORY PARAMETER BY ZMP CORRECTED PARAMETER CANDIDATE α , BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES (ZMPrecpeeka, ZMPrecpeekb), AND OTHER CURRENT TIME GAIT PARAMETERS.

S1706

DETERMINE TERMINAL DIVERGENCE COMPONENT $q0[k]$ ACCORDING TO THE FOLLOWING EXPRESSION FROM BODY POSITION/VELOCITY (X_e , V_e)
AT TERMINATING END OF CURRENT TIME GAIT:
 $q0[k] = X_e + V_{xe} / \omega_0$

S1708

DETERMINE TERMINAL DIVERGENCE COMPONENT ERROR $errq$ ACCORDING TO THE FOLLOWING EXPRESSION:
 $errq = q0[k] - q''$

S1710

TERMINAL BODY INCLINATION ANGLE ERROR θ_{berr}
= NORMAL GAIT INITIAL BODY INCLINATION ANGLE
- CURRENT TIME GAIT INITIAL BODY INCLINATION ANGLE
TERMINAL BODY INCLINATION ANGULAR VELOCITY ERROR ω_{berr}
= NORMAL GAIT INITIAL BODY INCLINATION ANGLE VELOCITY
- CURRENT TIME GAIT INITIAL BODY INCLINATION ANGULAR VELOCITY

S1702

S1712 yes

LEAVE REPETITION LOOP.

∞

ARE ALL $errq$, θ_{berr} , AND ω_{berr} WITHIN PERMISSIBLE RANGES?

S1714

DETERMINE A PLURALITY OF INITIAL VALUE CANDIDATES ($\alpha + \Delta \alpha$, ZMPrecpeeka, ZMPrecpeekb), (α , ZMPrecpeeka + Δ ZMPrecpeeka, ZMPrecpeekb), AND (α , ZMPrecpeeka, ZMPrecpeekb + Δ ZMPrecpeekb) IN THE VICINITY OF (α , ZMPrecpeeka, ZMPrecpeekb), AND BASED ON THEM, DETERMINE ERRORS ASSOCIATED WITH EACH OF THEM AS DESCRIBED ABOVE.

S1716

DETERMINE NEW PARAMETER CANDIDATES (α , ZMPrecpeeka, ZMPrecpeekb) ON THE BASIS OF (α , ZMPrecpeeka, ZMPrecpeekb) AND ERRORS ASSOCIATED WITH EACH OF INITIAL VALUE CANDIDATES IN THE VICINITY THEREOF.

RETURN

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FIG.19

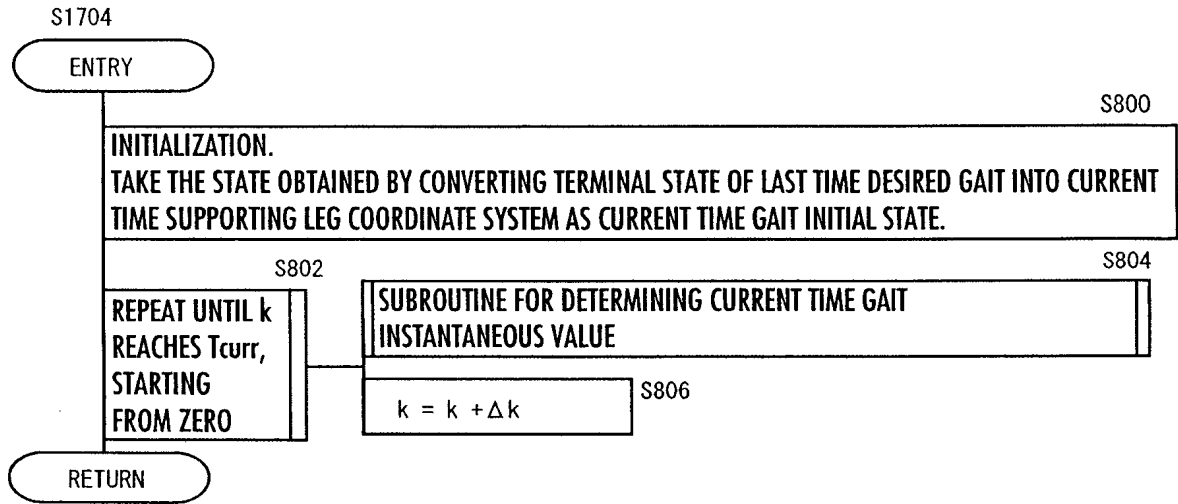


FIG.20

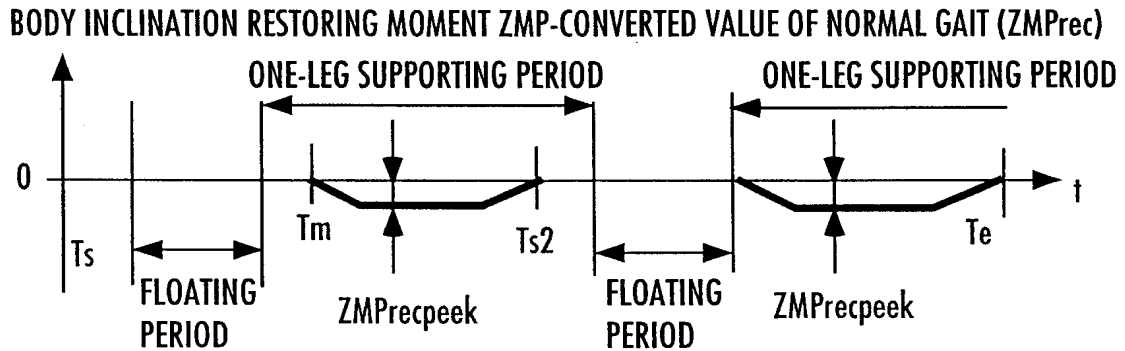
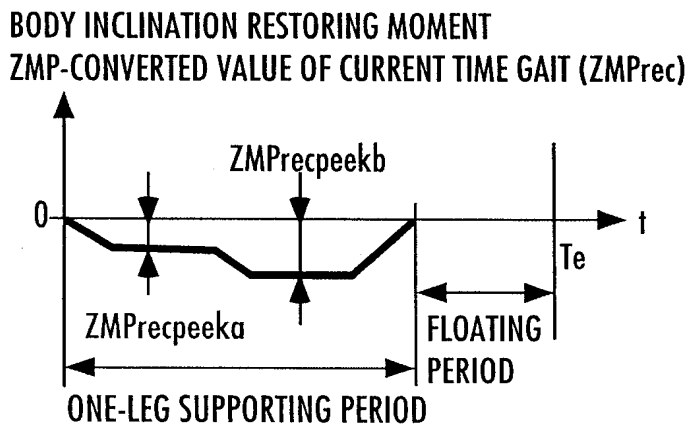


FIG.21



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FIG.22

